The Role of Trade Secrets in Innovation Policy

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Summary

Many businesses have developed proprietary information that provides a competitive advantage because it is not known to others. As the United States continues its shift to a knowledge- and service-based economy, the strength and competitiveness of domestic firms increasingly depends upon their know-how and intangible assets. Trade secrets are the form of intellectual property that protects this sort of confidential information.

Trade secret law protects secret, valuable business information from misappropriation by others. Subject matter ranging from marketing data to manufacturing know-how may be protected under the trade secret laws. Trade secret status is not limited to a fixed number of years, but endures so long as the information is valuable and maintained as a secret. A trade secret is misappropriated when it has been obtained through the abuse of a confidential relationship or improper means of acquisition.

A number of competing innovation policy concerns help shape the particular doctrines that comprise trade secret law. The availability of legal protection for trade secrets potentially promotes innovation, encourages firms to invest in employee development, and confirms standards of commercial ethics and morality. On the other hand, trade secret protection involves the suppression of information, which may hinder competition and the proper functioning of the marketplace. An overly robust trade secret law also could restrain employee mobility and promote investment in costly, but socially inefficient security measures.

Trade secrets are primarily a matter of state law. In 1996, Congress enacted the Economic Espionage Act (EEA), a statute that criminalizes both "economic espionage" and the "theft of trade secrets." The EEA provides for substantial fines and imprisonment penalties, as well as criminal forfeiture of property and court orders preserving the confidentiality of trade secrets. Some commentators believe that few prosecutions have occurred under the EEA since its enactment and have deemed the legislation ineffective.

Patents and trade secrets provide different intellectual property options for many new inventions. Inventors typically must choose (1) to maintain an invention as a trade secret, (2) to obtain a patent on the invention, or (3) allow the invention to enter the public domain. As a result, federal legislation or other developments that are perceived to alter the effectiveness of the patent system may make the trade secret more or less attractive to industry.

Some commentators have encouraged Congress to supplement the EEA, which is a criminal statute, with civil federal trade secret legislation. They believe that this step would improve uniformity within the system. However, others believe that no compelling case has been made to federalize trade secret law. Other observers assert that the EEA should be amended to involve a private cause of action for economic espionage and trade secret misappropriation.

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Introduction

In recent years the Congress has shown considerable interest in promoting the strength and international competitiveness of U.S. industry. Several recent legislative proposals have concerned the intellectual property laws, a widely recognized mechanism for promoting innovation. In particular, several bills introduced in the 111th Congress address the topic of trade secrets. For example, both the Electronic Device Recycling R&D Act[1] and the Motor Vehicle Owners Right to Repair Act of 2009[2] would allow firms to maintain confidential information as trade secrets. On the other hand, one recently enacted law arguably reduces the value of information that firms had retained as trade secrets. The Patient Protection and Affordable Care Act effectively allows manufacturers of follow-on biologics to rely upon the confidential clinical data generated by the product's sponsors in order to sell competing products.[3] In view of congressional interest in this form of intellectual property, an overview of trade secret law appears appropriate.

The term "trade secret" generally refers to secret, commercially valuable information, including such subject matter as confidential formulae, techniques for manufacturing a product, and customer lists.[4] Trade secret protection is largely a matter of state law.[5] Under those laws, misappropriation of a trade secret may be enjoined by a court and the defendant may also be liable for compensatory and punitive damages.[6] One notable federal statute, the Economic Espionage Act of 1996,[7] makes the theft or misappropriation of a trade secret a federal crime under certain circumstances.

Trade secrets play a role in U.S. innovation policy. Trade secrets may establish incentives to innovate because they provide a mechanism for firms to capture the benefits of their inventions.[8] Yet trade secrets also have proven controversial because they suppress, rather than disclose, particular innovations to the public.[9] They also may have a significant impact upon the mobility of highly trained employees between firms.[10] Further, because innovators often face a mutually

[1] H.R. 1580, § 3(f)(1).

[2] H.R. 2057, § 3(d)(1).

[3] P.L. 111-148, § 7002.

[4] *See* Uniform Trade Secret Act, § 1.

[5] *See* Michael Traynor and Katy Hutchinson, "Some Open Questions About Intellectual Property Remedies," 14 *Lewis & Clark Law Review* (2010), 453.

[6] *See* Shubha Ghosh, "Open Borders, Intellectual Property & Federal Criminal Trade Secret Law," 9 *John Marshall Review of Intellectual Property Law* (Fall 2009), 24.

[7] 104th Congress, P.L. 104-294 (Oct. 11, 1996).

[8] *See* Michael Risch, "Trade Secret Law and Information Development Incentives," in *The Law and Theory of Trade Secrecy: A Handbook of Contemporary Research* (Rochelle C. Dreyfuss, Katherine J. Strandburg, eds., Edward Elgar Publishing, 2010).

[9] *See* Michael P. Simpson, "The Future of Innovation: Trade Secrets, Property Rights, and Protectionism—An Age-Old Tale," 70 *Brooklyn Law Review* (2005), 1121.

[10] *See* Charles Tait Graves, "Trade Secrets as Property: Theory and Consequences," 15 *Journal of Intellectual Property Law* (2007), 39.

exclusive choice between patenting their inventions or maintaining them as trade secrets,[11] alterations to one of these regimes may alter the perceived attractiveness of the other.[12]

This report provides an overview of the law and policy of trade secrets. It discusses the role of trade secrets in U.S. innovation policy. It then reviews the sources of trade secret law and the substantive rules that they provide. The report then provides a more detailed review of existing federal legislation that pertains to trade secrets. In its next section, the report then discusses the relationship between patent law and trade secret law. The report closes with an identification of congressional issues and options within this field.

Trade Secrets and Innovation Policy

Many businesses have developed proprietary information that provides a competitive advantage because it is not known to others.[13] This category may include "high-tech" information such as chemical formulae, manufacturing techniques, product design, and technical data. But it may also include relatively "low-tech" information such as customer lists, business leads, marketing strategies, pricing schedules, and sales techniques.[14] Potentially of additional competitive value is "negative know-how": previously attempted, but flawed techniques or "blind alleys" that did not achieve their intended results.[15]

As the United States continues its shift to a knowledge- and service-based economy, the economic strength and competitiveness of firms increasingly depend upon their know-how and intangible assets. Leonard I. Nakamura, Assistant Vice President and Economist of the Federal Reserve Bank of Philadelphia, explains that in the U.S economy over the past half-century, "mass production and tangible investment have become less important, while new products . . . and intangible investment have become more important."[16] One recent estimate placed the value of trade secrets owned by U.S. publicly traded companies at five trillion dollars.[17]

Another way of measuring the increasing importance of intangible assets is by considering the value of the Standard & Poor's 500. The "S&P 500" consists of the marketplace value of 500 large publicly held companies.[18] In 1975, 16.8% of the total value of the S&P 500 reportedly consisted of intangible assets. In 2005, intangible assets reportedly constituted 79.7% of the total

[11] *See* Daniel C. Munson, "The Patent-Trade Secret Decision: An Industrial Perspective," 78 *Journal of the Patent and Trademark Office Society* (1996), 689.

[12] *See* Douglas Lichtman, "How the Law Responds to Self-Help," 1 *Journal of Law, Economics & Policy* (Winter 2005), 215 (observing that trade secret law acts "as both a complement to and competitor for patent law.").

[13] *See* Kurt M. Saunders, "The Law and Ethics of Trade Secrets: A Case Study," 42 *California Western Law Review* (2006), 209.

[14] Milton Babirak, *Secrets of the Uniform Trade Secret Act*, D.C. BAR CLE PROGRAM (Nov. 9, 2005).

[15] Charles Tait Graves, "The Law of Negative Knowledge: A Critique," 15 *Texas Intellectual Property Law Journal* (2007), 387.

[16] Leonard I . Nakamura, *Intangible Assets and National Income Accounting: Measuring a Scientific Revolution*, Working Paper No. 09-11, Federal Reserve Bank of Philadelphia, at 3.

[17] *See* Elizabeth A. Rowe, "Contributory Negligence, Technology, and Trade Secrets," 17 *George Mason Law Review* (2009), 1.

[18] *See* http://www.standardandpoors.com.

value of these firms.[19] According to attorney R. Mark Halligan, "the vast bulk of intangible assets are trade secret assets."[20]

Yet the rise of computer technology, the ubiquity of cell phones and the Internet, and our transition to the Information Age have increased the difficulty that firms encounter in maintaining the confidentiality of their proprietary information. Years ago, the theft of trade secrets may have involved the taking of laboratory notebooks, memoranda, or other papers from a competitor's office despite the presence of security personnel or surveillance cameras. Today, a trade secret misappropriator can download proprietary information from company computers, or take photographs of confidential documents using a cell phone camera, within moments. As attorney Victoria A. Cundiff concisely states: "The digital world is no friend to trade secrets."[21]

As U.S. firms become increasingly immersed in global competition, some observers believe that foreign firms and even foreign governments have devoted significant resources towards industrial espionage.[22] According to the Office of the National Counterintelligence Executive, "[t]he United States remains the prime target for foreign economic collection and industrial espionage by virtue of its global technological leadership and innovation."[23] These efforts have been linked not just to the economic competitiveness of the United States, but also to its national security.[24]

The legal concept of trade secrets addresses these circumstances. Principles of trade secret law guard against the misappropriation of information that is not generally known. In view of the increasing prominence of information, it is unsurprising that Michael Risch, a member of the law faculty of the West Virginia University College of Law, asserts that trade secrets are "arguably the most important and most heavily litigated intellectual property right."[25]

Framing the trade secret law requires a balancing of competing interests. A robust trade secret law that provides strong protection to proprietary commercial information potentially holds many advantages. It may allow firms to capture the benefits of the costs and time it takes to develop the information, without having to share the benefits of that information with others. Trade secret law therefore may be seen as providing incentives to innovate.[26]

Trade secret law may also encourage firms to invest in human capital. A firm is more likely to invest in employee development if it has some confidence that employee cannot immediately use

[19] James E. Malackowski, "The Intellectual Property Marketplace: Past, Present and Future, 5 *The John Marshall Journal of Intellectual Property Law* (2006), 605.

[20] R. Mark Halligan, "Protection of U.S. Trade Secret Assets: Critical Amendments to the Economic Espionage Act of 1996," 7 *John Marshall Review of Intellectual Property Law* (2008), 656.

[21] Victoria A. Cundiff, "Reasonable Measures to Protect Trade Secrets in a Digital Environment," 49 *IDEA: The Intellectual Property Law Review* (2009), 359.

[22] Susan W. Brenner and Anthony C. Crescenzi, "State-Sponsored Crime: The Futility of the Economic Espionage Act," 28 *Houston Journal of International Law* (2006), 389.

[23] Office of the National Counterintelligence Executive, *Annual Report to Congress on Foreign Economic Collection and Industrial Espionage* (2007), 1.

[24] Aaron J. Burstein, "Trade Secrecy as an Instrument of National Security? Rethinking the Foundations of Economic Espionage," 41 *Arizona State Law Journal* (2009), 933.

[25] Michael Risch, "Why Do We Have Trade Secrets?," 11 *Marquette Intellectual Property Law Review* (2007), 1.

[26] Oren Bar-Gill, "Law and the Boundaries of Technology-Intensive Firms," 157 *University of Pennsylvania Law Review* (2009), 1649.

his knowledge in the service of a competitor.[27] Firms may also establish a trade secret easily through self-help measures. Commercially valuable information is protected once a firm makes reasonable efforts to maintain it in confidence. There is no need for formal government involvement, in contrast to patents.[28]

Trade secret law also confirms and regulates standards of commercial ethics and morality.[29] The misappropriation doctrine applies only against wrongdoers—those who have breached a duty of confidence, engaged in espionage, or otherwise acted in bad faith.[30] Trade secret law thus recognizes that even within a marketplace based open free competition, certain kinds of competitive behavior step beyond our social norms and should be discouraged.[31]

On the other hand, trade secret laws potentially have negative aspects. First, although trade secret law may promote advancement, it might facilitate a particular kind of innovation—the development of information that is itself amenable to being kept secret.[32] In addition, the protection of trade secrets necessarily requires firms to conceal their new developments. But as Judge Goldberg observed 40 years ago, "for our industrial competition to remain healthy there must be breathing room for observing a competing industrialist."[33] Thus, while some degree of information protection may be needed to promote innovation, some amount of information sharing may be essential for competition and proper functioning of the market.[34]

As well, firms must expend resources to maintain information as a trade secret. Employees must sign confidentiality agreements, locks and safes must be installed, and electronic protection measures must be in place on computer systems. These measures entail time and expense.[35] Employers also may be encouraged to limit access to valuable information to select employees. Disclosing valuable trade secrets on a "need to know" basis to one's employees may restrict employee development and ultimately hinder the operation of the firm.[36]

Trade secret law may negatively impact employee mobility. Individuals who are unable to take their knowledge from job to job may be limited in their ability to change employers.[37] As explained by Alan L. Durham, a member of the law faculty of the University of Alabama, an

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[27] Miles J. Feldman, "Toward a Clearer Standard of Protectable Information: Trade Secrets and the Employment Relationship," 9 *High Technology Law Journal* (1994), 151.

[28] Lemley, *supra*, at 313.

[29] *See* Elizabeth A. Rowe, "A Sociological Approach to Misappropriation," 58 *University of Kansas Law Review* (2009), 1.

[30] *See* Rebecca S. Eisenberg, "Proprietary Rights and the Norms of Science in Biotechnology Research," 97 *Yale Law Journal* (1987), 177.

[31] *See* James Grimmelmann, "The Ethical Visions of Copyright Law," 77 *Fordham Law Review* (2009), 2005.

[32] Michael P. Simpson, "The Future of Innovation: Trade Secrets, Property Rights, and Protectionism—An Age-Old Tale," 70 *Brooklyn Law Review* (2005), 1121.

[33] E.I. duPont deNemours & Co. v. Christopher, 431 F.2d 1012 (5th Cir. 1970).

[34] Michael J. Garrison and John T. Wendt, "The Evolving Law of Employee Noncompete Agreements: Recent Trends and an Alternative Policy Approach," 45 *American Business Law Journal* (2008), 107.

[35] *See* Douglas Lichtman, "How the Law Responds to Self-Help," 1 *Journal of Law, Economics & Policy* (2005), 215.

[36] *See* Bruce Fallick *et al.*, "Job-Hopping in Silicon Valley: Some Evidence Concerning the Microfoundations of a High-Technology Cluster," 88 *The Review of Economics and Statistics* (2006), 472.

[37] *See* Bruce Alan Kugler, "Limiting Trade Secret Protection," 22 *Valparaiso University Law Review* (1988), 725.

overly robust view of trade secret law potentially may "limit individual freedom, weaken employee bargaining power, and harm society through diminished competition."[38]

The various rules that together comprise the discipline of trade secret law may be fashioned in an effort to maximize the potential advantages of trade secrets while minimizing their disadvantages. This report next provides a more detailed review of the doctrines that regulate the acquisition and enforcement of trade secrets.

An Overview of Trade Secret Law

Basic Principles

While it has been written that an "exact definition of a trade secret is not possible,"[39] a trade secret generally consists of secret, commercially valuable information.[40] As explained by Henry Perritt, Jr., a member of the faculty of the Chicago-Kent College of Law, "trade secret subject matter includes any of the major functions of business enterprise: production and operations, engineering and research and development, marketing, finance, purchasing, and management."[41] Specific examples of trade secret subject matter include customer lists, manufacturing processes, marketing strategies, pricing information, product design, recipes, and sales techniques.[42] One court has described trade secrets as follows:

> A trade secret is really just a piece of information (such as a customer list, or a method of production, or a secret formula for a soft drink) that the holder tries to keep secret by executing confidentiality agreements with employees and others and by hiding the information from outsiders by means of fences, safes, encryption, and other means of concealment, so that the only way the secret can be unmasked is by a breach of contract or a tort.[43]

Whether information qualifies as a "trade secret" is a question of fact that may be determined by a jury. Among the factors in assessing whether certain subject matter is a trade secret are:

- the extent to which the information is known outside of the company;
- the extent to which it is known by employees and others involved in the company;
- the extent of measures taken by the company to guard the secrecy of the information;
- the value of the information to the company and to its competitors;

[38] Alan L. Durham, "Natural Laws and Inevitable Infringement," 93 *Minnesota Law Review* (2009), 933.

[39] Restatement (First) of Torts § 757, comment b.

[40] Uniform Trade Secrets Act § 1(4).

[41] Henry H. Perritt, Jr., *Trade Secrets: A Practitioner's Guide* § 3:9 (2d ed. 2006).

[42] *See* Babirak, *supra*.

[43] ConFold Pac. v. Polaris Indus., 433 F.3d 952, 959 (7th Cir. 2006) (citations omitted).

- the amount of effort or money expended by the company in developing the information; and
- the ease or difficulty with which the information could be properly acquired or duplicated by others.[44]

The law protects trade secrets from misappropriation by others. Misappropriation is a tort that may occur in several distinct ways. One is when an individual acquires the trade secret through improper means, such as theft, bribery, misrepresentation, or espionage.[45] Another is when the individual uses or discloses the trade secret through a breach of confidence. For example, an employee might switch jobs, and then disclose his previous employer's trade secrets in violation of a confidentiality agreement.[46]

Finally, a trade secret may be misappropriated if it is used or disclosed with knowledge that the trade secret had been acquired improperly or through mistake. A person who uses information that he knows to have been stolen by another is therefore also guilty of misappropriation.[47] Misappropriation of a trade secret may be enjoined by a court and the defendant may also be liable for compensatory and punitive damages.[48]

Conversely, it is not a violation of trade secret law for another firm to discover the subject matter of a trade secret independently.[49] "Reverse engineering" is also considered to be an appropriate means for one firm to acquire the subject matter of another's trade secret.[50] A firm that discerns the subject matter of the trade secret by inspecting products available to the public also has not engaged in misappropriation.[51]

Trade secret protection may extend indefinitely. So long as information is not generally known to the public, confers an economic benefit to its holder, and is subject to reasonable efforts to maintain its secrecy, it may be considered a trade secret.[52] However, the trade secret status of information may be lost if the information is accidentally or intentionally disclosed by an employee.[53] Once a trade secret has been exposed to the public, its protected character is lost and cannot later be retrieved.[54] However, disclosures of trade secrets to third parties for certain limited reasons do not waive trade secret protections, so long as the trade secret owner took reasonable measures to maintain its secrecy before and during disclosure, such as requiring non-disclosure or confidentiality agreements from each recipient of confidential information.[55]

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[44] Restatement (First) of Torts § 757, comment b.

[45] Restatement (Third) of Unfair Competition § 40 (1994).

[46] *See* Jennifer Brockett, "Protecting Intellectual Property During Layoffs," 32 *Los Angeles Lawyer* (April 2009).

[47] Restatement (Third) of Unfair Competition § 40 (1994).

[48] Restatement (Third) of Unfair Competition §§ 44, 45 (1994).

[49] Restatement (Third) of Unfair Competition § 43 (1994).

[50] *See* Kristin L. Black, "Crimes of Fashion: Is Imitation Truly the Sincerest Form of Flattery?," 19 *Kansas Journal of Law and Public Policy* (2010), 515.

[51] Restatement (Third) of Unfair Competition § 43 (1994).

[52] Perritt, *supra* , at § 2:2.

[53] *See* Religious Tech. Ctr. v. Netcom On-Line Communication Servs., 923 F. Supp. 1231, 1256 (N.D. Cal. 1995).

[54] In re Remington Arms Co., 952 F.2d 1029, 1033 (8th Cir. 1991).

[55] 1 Roger Milgrim, *Milgrim on Trade Secrets* § 1.04.

Sources of Law

The discipline of trade secrets was traditionally developed through state common law. State courts developed the essential principles of trade secret law through their decisions, which were then observed as precedent in subsequent litigation. In 1939, the American Law Institute (ALI), a group of lawyers, judges, and legal scholars, published a treatise titled the "Restatement of Torts." The Restatement of Torts included two sections dealing with the law of trade secrets. Section 757 explained the subject matter of trade secrets, while Section 758 spelled out the elements of a trade secret misappropriation cause of action. Although this treatment was succinct, many commentators believe that these definitions proved influential in the courts.[56]

Trade secrets were not addressed in the Second Restatement of Torts published in 1978. The ALI at that time concluded that trade secret law had grown "no more dependent on Tort law than it is on many other general fields of law and upon broad statutory developments,"[57] and opted not to house trade secrets there. The ALI addressed this gap in its 1993 Restatement (Third) of Unfair Competition, which deals with trade secrets in sections 39–45.

In addition, the National Conference of Commissioners on Uniform State Law (NCCUSL) issued the Uniform Trade Secrets Act (UTSA) in 1979. The NCCUSL consists of a group of academics, attorneys, and judges who draft statutes addressing a variety of issues, and then propose that each state enact them.[58] The NCCUSL lacks direct legislative authority itself. Its uniform acts become law only to the extent that state legislatures adopt them.

The UTSA has arguably proven successful, as it has reportedly been enacted in 46 states, the District of Columbia, and the Virgin Islands.[59] The four states that have reportedly not enacted the UTSA are Massachusetts, New Jersey, New York, and Texas. These states do recognize trade secrets, but provide protection through a distinct statute or the common law. As attorney David S. Almeling reports, those four states represent 22% of the U.S. Gross Domestic Product.[60]

It should be appreciated that many jurisdictions have enacted the UTSA after making some changes to the original text of the proposed legislation. Opinions vary on how significant these modifications have been. While some commentators view state-by-state variations as "generally minor,"[61] others have opined that "they include fundamental differences about what constitutes a trade secret, what is required to misappropriate it, and what remedies are available."[62]

[56] *See* Katarzyna A. Czapracka, "Antitrust and Trade Secrets: The U.S. and EU Approach," 24 *Santa Clara Computer High Technology Law Journal* (2008), 207.

[57] ALI, Restatements of Torts (Second), Introduction (1979).

[58] For further information about the organization, see http://www.nccusl.org.

[59] *See* David S. Almeling, "A Statistical Analysis of Trade Secret Litigation in Federal Courts," 45 *Gonzaga Law Review* (2009-10), 291.

[60] David S. Almeling, "Four Reasons to Enact a Federal Trade Secrets Act," 19 *Fordham Intellectual Property, Media & Entertainment Law Journal* (2009), 769 (hereinafter Almeling, *Four Reasons*).

[61] Babirak, *supra*, at 3.

[62] Almeling, *Four Reasons*, *supra*, at 774.

The Economic Espionage Act

As noted previously, trade secrets have traditionally been the subject of state law. Prior to 1996, arguably the most significant federal legislation on point was the Trade Secrets Act.[63] Although broadly titled, this 1948 statute is actually of narrow application. It forbids federal government employees and government contractors from making an unauthorized disclosure of confidential government information, including trade secrets. The sanctions for violating this criminal offense are removal from office or employment, and a fine and/or imprisonment of not more than one year. The law does not apply to state or local government actors or to private sector employees.

In 1996, motivated by concerns over growing international and domestic economic espionage against U.S. firms, Congress enacted new legislation pertaining to trade secrets. The Economic Espionage Act (EEA) criminalizes both "economic espionage" and the "theft of trade secrets." The "economic espionage" provision punishes those who knowingly misappropriate, or attempt or conspire to misappropriate, trade secrets with the intent or knowledge that the offense will benefit a foreign government, instrumentality or agent.[64] The "theft of trade secrets" prohibition is of more general application. The principal elements of an EEA claim for theft of trade secrets are: (1) the intentional and/or knowing theft, appropriation, destruction, alteration, or duplication of (2) a trade secret placed in interstate commerce (3) with intent to convert the trade secret and (4) intent or knowledge that such action will injure the owner.[65]

The EEA provides for substantial fines and imprisonment penalties. For economic espionage, the maximum penalties increase to $500,000 for individuals and imprisonment of 15 years, or $10 million for corporations.[66] Theft of trade secrets is punishable by a fine of up to $250,000 for individuals as well as imprisonment of up to 10 years. Organizations can be fined up to $5 million.[67] The EEA also provides for criminal forfeiture of property and court orders preserving the confidentiality of trade secrets.[68]

The EEA has been subject to critical commentary. Attorney R. Mark Halligan expressed the view that the legislation was "ineffective" and observed, in 2008, that there had been fewer than 60 prosecutions in keeping with its provisions.[69] Susan W. Brenner, a member of the law faculty of the University of Dayton, and security expert Anthony C. Crescenzi opine that the "paucity" of prosecutions under the EEA are due to a number of factors, including the complexity of the cases, the desire of the Department of Justice only to bring cases it can win, the diplomatic repercussions of bringing such a case, and the unwelcome possibility of additional disclosure of trade secrets during the litigation.[70] Brenner and Crescenzi conclude that the "individual and

[63] June 25, 1948, c. 645, 62 Stat. 79 (codified at 18 U.S.C. § 1905).

[64] 18 U.S.C. § 1831.

[65] 18 U.S.C. § 1832.

[66] 18 U.S.C. § 1831.

[67] 18 U.S.C. § 1832.

[68] 18 U.S.C. §§ 1834, 1835.

[69] *See* Halligan, *supra.*

[70] Susan W. Brenner and Anthony C. Crescenzi, "State-Sponsored Crime: The Futility of the Economic Espionage Act," 28 *Houston Journal of International Law* (2006), 389.

combined effect of the systemic factors discussed above is to erode the EEA's effectiveness as a weapon against economic espionage."[71]

Trade Secrets and Patents

Trade secrets and patents form two distinct fields within the U.S. intellectual property system. In one sense, trade secrecy serves as the chief alternative to the patent system. Most inventors must choose one of three options: (1) maintain a technology as a trade secret, (2) seek patent protection, (3) or decline to seek intellectual property protection at all and allow the technology to enter the public domain.[72] In view of the close relationship between trade secrets and patents, this report next provides an overview of the patent system and its interaction with trade secret law.

Introduction to the Patent System

An inventor may seek the grant of a patent by preparing and submitting an application to the U.S. Patent and Trademark Office, or USPTO.[73] USPTO officials known as examiners then determine whether the invention disclosed in the application merits the award of a patent.[74] The USPTO examiner will consider a number of legal requirements, including whether the submitted application fully explains and distinctly claims the invention. In particular, the application must enable persons skilled in the art to make and use the invention without undue experimentation. In addition, the application must provide the "best mode," or preferred way, that the applicant knows to practice the invention.[75]

The examiner will also determine whether the invention itself fulfills certain substantive standards set by the patent statute. To be patentable, an invention must meet four primary requirements. First, the invention must fall within at least one category of patentable subject matter.[76] According to the Patent Act, an invention which is a "process, machine, manufacture, or composition of matter" is eligible for patenting. Second, the invention must be useful, a requirement that is satisfied if the invention is operable and provides a tangible benefit.[77] Third, the invention must be novel, or different, from subject matter disclosed by an earlier patent, publication, or other state-of-the-art knowledge.[78] Finally, an invention is not patentable if "the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains."[79] This requirement of "nonobviousness" prevents the issuance of patents claiming subject matter that a skilled artisan would have been able to implement in view of the knowledge of the state of the art. If the USPTO

[71] *Id.* at 439.

[72] *See generally* John S. Paniaguas and Craig William Mandell, "A Practitoner's Guide to Protecting Technology Assets," 20 *DePaul Journal of Art, Technology & Intellectual Property Law* (2010), 279.

[73] 35 U.S.C. § 111.

[74] 35 U.S.C. § 131.

[75] 35 U.S.C. § 112.

[76] 35 U.S.C. § 101.

[77] *Id.*

[78] 35 U.S.C. § 102.

[79] 35 U.S.C. § 103.

allows the patent to issue, its owner obtains the right to exclude others from making, using, selling, offering to sell, or importing into the United States the patented invention.[80]

Trade Secrets and Patents Compared

Inventors who do not wish to dedicate their technologies to the public domain must, as a general matter, choose between trade secret and patent protection. A number of factors inform this decision. One is whether the inventor will practically be able to keep the technology secret. A knowledgeable observer may readily be able to inspect a motor, machine, or other mechanical technology in order to learn its design, for example. On the other hand, the composition of a chemical compound may be much more difficult to discern.[81]

The costs associated with acquiring and maintaining patents are another factor. In this respect, it should be appreciated that a U.S. patent provides rights only with the United States. However, virtually anyone in the world may review a U.S. patent to learn of its contents. As a result, U.S. inventors may need to obtain patents in many foreign countries in order to secure meaningful protection.

In addition, the process of acquiring a patent may take many years.[82] A USPTO examiner in 2009 would not review a patent application until, on average, 25.8 months after it was filed.[83] The "first action pendency" during 2000 was 13.6 months.[84] Many observers believe that if current conditions continue, the backlog and delay are likely to grow at the USPTO in coming years.[85] These delays may prove too lengthy for innovators in fast-moving industries, suggesting that trade secret protection is the more appropriate choice.

Also, trade secrets may potentially extend indefinitely, so long as the requirements for trade secret protection are maintained. In contrast, patents expire after a set period of time, normally 20 years after the date they were filed. On the other hand, trade secret protection may be lost through a competitor's reverse engineering or independent discovery. As explained by Dan Burk, a member of the faculty of the University of California, Irvine School of Law, "the inventor's choice is an election between twenty years of certain patent protection or perpetual, but less certain, trade secret protection."[86]

It should also be appreciated that when an inventor obtains a patent on an invention, the USPTO publishes that patent in a formal document. That publication destroys the trade secret status of

[80] 35 U.S.C. § 271.

[81] *See* Daniel C. Munson, "The Patent-Trade Secret Decision: An Industrial Perspective," 78 *Journal of the Patent and Trademark Office Society* (1996), 689.

[82] *See* CRS Report R41261, *Deferred Examination of Patent Applications: Implications for Innovation Policy*, by John R. Thomas.

[83] USPTO, Performance and Accountability Report Fiscal Year 2009 (available at http://www.uspto.gov/web/offices/com/annual/2009/mda_02_02.html).

[84] USPTO, 2003 Performance and Accountability Report (available at http://www.uspto.gov/about/stratplan/ar/2003/040201_patentperform.jsp).

[85] *See, e.g.*, Jon Dudas et al., "Let the PTO Pay Its Own Way," 198 New Jersey Law Journal no. 12 (Dec. 21, 2009), 975; Steven Andersen, "Out of Balance," Inside Counsel (Nov. 1, 2009).

[86] Dan L. Burk, "Legal Constraint of Genetic Use Restriction Technologies," 6 *Minnesota Journal of Law, Science, and Technology* (2004), 335.

any previously confidential information disclosed within it.[87] In addition, the USPTO publishes many, but not all, pending patent applications "promptly after the expiration of a period of 18 months" after they are filed.[88] This measure also destroys the trade secret status of information contained within the published application, even if the USPTO subsequently rejects the application and no patent ever issues on that invention.[89]

Potential Policy Conflicts

The trade secret and patent systems are sometimes viewed as acting in conflicting ways. Trade secret protection is predicated upon the maintenance of the protected information in confidence. In contrast, each patented invention is the subject of a formal document, the patent instrument, which provides a complete description of the invention. As a result, while the patent system appears to promote the public disclosure of new technologies, the trade secret discourages disclosure.[90] As described previously, it could be argued that trade secret law encourages the development of technologies that are capable of being kept secret.[91]

However, some commentators believe that patents and trade secrets generally act in a complementary manner.[92] Mark Lemley, a member of the faculty of the Stanford Law School, has explained that trade secret law provides valuable incentives to innovate in areas where the patent law does not reach, such as customer lists and business plans.[93] Lemley further explains that although the law requires that reasonable efforts must be made to maintain secrecy, absent trade secret law, firms might need to engage in even more physical and contractual measures to prevent disclosure. As a result, a society without trade secret law might potentially have more, rather than less secrecy.[94]

In any event, patent law doctrine may be viewed as disfavoring trade secret holders. Well-established patent law provides that an inventor who makes a secret, commercial use of an invention for more than one year prior to filing a patent application at the USPTO forfeits his own right to a patent.[95] This policy is based principally upon the desire to maintain the integrity of the statutorily prescribed patent term. The patent law grants patents a term of twenty years, commencing from the date a patent application is filed.[96] If the trade secret holder could make commercial use of an invention for many years before choosing to file a patent application, he could disrupt this regime by delaying the expiration date of his patent.

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[87] *See* BondPro Corp. v. Siemens Power Generation, Inc., 463 F.3d 703, 706 (7th Cir. 2006).

[88] 35 U.S.C. § 122(b)(1).

[89] *See* BondPro v. Siemens, *supra*.

[90] Michael P. Simpson, "The Future of Innovation: Trade Secrets, Property Rights, and Protectionism—An Age-Old Tale," 70 *Brooklyn Law Review* (2005), 1121.

[91] *Id.*

[92] *See, e.g.*, Karl F. Jorda, "Patent and Trade Secret Complementariness: An Unexpected Synergy," 48 *Washburn Law Journal* (2008), 1; Jonathan D. Carpenter, "Intellectual Property: The Overlap Between Utility Patents, Plant Patents, the PVPA, and Trade Secrets and the Limitations on that Overlap," 81 *North Dakota Law Review* (2005), 171.

[93] Mark A. Lemley, "The Surprising Virtues of Treating Trade Secrets as IP Rights," 61 *Stanford Law Review* (2008), 131.

[94] *Id.*

[95] 35 U.S.C. § 102(b). *See* Metallizing Engineering Co. v. Kenyon Bearing & Auto Parts, 153 F.2d 516 (2d Cir. 1946).

[96] 35 U.S.C. § 154.

On the other hand, settled patent law principles established that prior secret uses would not defeat the patents of later inventors.[97] If an earlier inventor made secret commercial use of an invention, and another person independently invented the same technology later and obtained patent protection, then the trade secret holder could face liability for patent infringement. This policy is based upon the reasoning that once issued, published patent instruments fully inform the public about the invention, while trade secrets do not. As between a subsequent inventor who patented the invention, and thus had disclosed the invention to the public, and an earlier trade secret holder who had not, the law favored the patent holder.[98]

An example may clarify this rather complex legal situation. Suppose that Inventor X develops and makes commercial use of a new manufacturing process. Inventor X chooses not to obtain patent protection, yet maintains that process as a trade secret. Many years later, Inventor Y independently develops the same manufacturing process and promptly files a patent application claiming that invention. In such circumstances, Inventor X's earlier, trade secret use does not prevent Inventor Y from procuring a patent. Furthermore, if the USPTO approves the patent application, then Inventor X faces infringement liability should Inventor Y file suit against him.[99]

The First Inventor Defense

Congress modified the usual rules governing the relationship between trade secrets and patents when it established the "first inventor defense" in the American Inventors Protection Act of 1999.[100] That statute in part provided an infringement defense for an earlier inventor of a "method of doing or conducting business" that was later patented by another. By limiting this defense to patented methods of doing business, Congress responded to the 1998 Federal Circuit opinion in *State Street Bank and Trust Co. v. Signature Financial Group*.[101] That judicial opinion recognized that business methods could be subject to patenting, potentially exposing individuals who had maintained business methods as trade secrets to liability for patent infringement.

Again, an example may aid understanding of the first inventor defense. Suppose that Inventor X develops and exploits commercially a new method of doing business. Inventor X maintains his business method as a trade secret. Many years later, Inventor Y independently develops the same business method and promptly files a patent application claiming that invention. Even following the enactment of the American Inventors Protection Act, Inventor X's earlier, trade secret use would not prevent Inventor Y from procuring a patent. However, should the USPTO approve Inventor Y's patent application, and should Inventor Y sue Inventor X for patent infringement, then Inventor X may potentially claim the benefit of the first inventor defense. If successful, Inventor X would enjoy a complete defense to infringement of Inventor Y's patent.

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[97] Sharon K. Sandeen, "*Kewanee* Revisited: Returning to First Principles of Intellectual Property Law to Determine the Issue of Federal Preemption," 12 *Marquette Intellectual Property Law Review* (2008), 299.

[98] W.L. Gore & Associates v. Garlock, Inc., 721 F.2d 1540 (Fed. Cir. 1983).

[99] *See* Roger E. Schechter and John R. Thomas, *Intellectual Property: The Law of Copyrights, Patents and Trademar*ks (Thomson-West 2003), § 16.2.2.

[100] The American Inventors Protection Act of 1999, P.L. 106-113, was part of the Intellectual Property and Communications Omnibus Reform Act of 1999, attached by reference to the Consolidated Appropriations Act for Fiscal Year 2000. President Clinton signed this bill on November 29, 1999.

[101] 149 F.3d 1368 (Fed. Cir. 1998).

At the time this report was published, no reported judicial opinion considers the first inventor defense. The most prominent judicial treatment of the first inventor defense arguably occurred in the 2010 Supreme Court opinion in *Bilski v. Kappos*.[102] There, a plurality of the Supreme Court concluded that the American Inventors Protection Act evidenced the congressional intent that business methods were appropriately patented. The concurring opinion of Justice Stevens expressed a distinct view, stating that "that the 1999 Congress would never have enacted §273 if it had foreseen that this Court would rely on the provision as a basis for concluding that business methods are patentable."[103]

Legislation before the 111th Congress would modify the first inventor defense. Both H.R. 1260 and S. 515, each titled the Patent Reform Act of 2009, would expand the first inventor defense as it was established in 1999. The defense currently applies to "the person who performed the acts necessary to establish the defense...." Both bills would also allow "any other entity that controls, is controlled by, or is under common control" with that person to claim entitlement to the first inventor defense.[104] A third bill titled the Patent Reform Act of 2009, S. 610, does not address the first inventor defense.

Congressional Issues and Options

A variety of options are available for Congress with respect to trade secrets. If the current situation is deemed appropriate, then no action need be taken. Alternatively, Congress may wish to consider the adoption of a federal trade secret law. Several commentators believe that this step would promote the uniformity of trade secret law throughout the United States.[105] As attorney David S. Almeling asserts:

> Trade secrets stand alone as the only major type of intellectual property governed primarily by state law. Trademarks, copyrights, and patents are each governed primarily by federal statutes. Trade secrets, by contrast, are governed by fifty state statutes and common laws. The result is that trade secret law differs from state to state. It is time to eliminate these differences—and the significant problems they cause—by enacting a Federal Trade Secrets Act ("FTSA").[106]

According to Alemeling, general federal trade secret legislation would establish greater uniformity in substantive and procedural law than is possible in a state-based regime.

Other commentators have further suggested that the current state-based trade secrets system places the United States in violation of its obligations under two international agreements: the North American Free Trade Agreement (NAFTA) and the World Trade Organization Agreement on Trade-Related Aspects of Intellectual Property (TRIPS Agreement).[107] Both NAFTA and the

[102] ___ U.S. ___, 2010 WL 2555192 (2010).

[103] 2010 WL 2555192 at *29.

[104] H.R. 1260 at § 5(c); S. 515 at § 4(c).

[105] *See, e.g.*, Marina Lao, "Federalizing Trade Secrets Law in an Information Economy," 59 *Ohio State Law Journal* 1633 (1998); Rebel J. Pace, "The Case for a Federal Trade Secrets Act," 8 *Harvard Journal of Law & Technology* (1995), 427.

[106] *See* Almeling, *supra*.

[107] *See, e.g.*, Marina Lao, "Federalizing Trade Secrets Law in an Information Economy," 59 *Ohio State Law Journal* 1633 (1998); Rebel J. Pace, "The Case for a Federal Trade Secrets Act," 8 *Harvard Journal of Law & Technology* (continued...)

TRIPS Agreement require member states to provide certain levels of trade secret protection. Because the portions of NAFTA and the TRIPS Agreement concerning trade secrets were modeled after the Uniform Trade Secrets Act (UTSA), those states that have adopted the UTSA without restrictive modifications likely comply with these international standards. But some states have not adopted the UTSA, and some states that have done so have arguably included more restrictive standards. Some commentators have asserted that these states place the United States in violation of NAFTA and the TRIPS Agreement. However, others have observed that any shortcomings of U.S. law on this point have yet to be challenged under either international agreement.[108]

Still other observers assert that no compelling case has been made to federalize trade secret law. Some believe that this step might create additional burdens and costs upon the federal judiciary.[109] Others cite federalism concerns, believing that the states possess a strong interest in regulating local economies in view of their own, local norms.[110] In addition, variation between the laws of the different states does not necessarily compel federalization of the field. For example, meaningful distinctions between the states exist in other areas of law, including such fundamental disciplines as contract law. Yet these disciplines remain subject to state law.[111]

A second possibility for Congress is to amend the Economic Espionage Act. Varying commentators have described the EEA as "seldom enforced,"[112] "futile,"[113] and of "limited" value as a deterrent.[114] Reforms have been proposed to address these perceived deficiencies. Attorney R. Mark Halligan has asserted that the EEA, which is currently limited to criminal prosecution, should include a civil cause of action. According to Halligan, enacting a federal civil cause of action to protect trade secrets would deter the theft of trade secrets and act to the advantage of U.S. firms domestically and abroad.[115] Halligan does not propose wholly federalizing trade secret law—under his proposal, trade secret law would remain primarily a matter of state law. Still, some of the concerns voiced in that context, including burdening the federal judiciary and decreasing state sovereignty, could potentially arise here as well.

In addition, Congress may wish to remain apprised of the potential effect of current patent reform efforts upon trade secrets.[116] As this report has discussed, trade secrets and patents act in complementary ways to protect innovation in the United States.[117] Further, to some degree the

(...continued)

(1995), 427.

[108] *See* Almeling, *supra.*

[109] *See, e.g.,* American Intellectual Property Law Association, *Report of the AIPLA Trade Secrets Committee* (2007) (available at http://www.aipla.org).

[110] *Id.*

[111] *See generally* Llewellyn Joseph Gibbons, "Stop Mucking Up Copyright Law: A Proposal for a Federal Common Law of Copyright," 35 *Rutgers Law Journal* (2004), 959.

[112] Burstein, *supra.*

[113] Brenner & Crescenzi, *supra.*

[114] Mark E.A. Danielson, "Economic Espionage: A Framework for a Workable Solution," 10 *Minnesota Journal of Law, Science & Technology* (2009), 503.

[115] Halligan, *supra.*

[116] *See* CRS Report R40481, *Patent Reform in the 111th Congress: Innovation Issues*, by Wendy H. Schacht and John R. Thomas.

[117] *See also* Scott W. Cummings, "The Role of Trade Secrets in Today's Nanotechnology Patent Environment," 5 *Nanotechnology Law & Business* (2008), 41.

two forms of intellectual property act as imperfect substitutes for each other. As a result, legislative reforms that are perceived to make patents more effective may reduce industrial reliance upon trade secrets. Conversely, amendments to the Patent Act that are believed to reduce the effectiveness of patents may increase the willingness of firms to retain information as trade secrets.[118]

Concluding Observations

Trade secrets form a significant component of the intellectual property system of the United States. The importance of trade secrets will likely increase as U.S. industry continues to participate within a knowledge-based, global economy with increasingly sophisticated competitors. Because trade secrets are currently a matter of state law, congressional influence over the system has thus far been indirect: Through the enactment of a criminal statute, the Economic Espionage Act, and through amendment to the patent law. Whether further intervention is required in the U.S. trade secret system remains a matter of congressional judgment.

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[118] *See* Christopher A. Cotropia and Mark A. Lemley, "Copying in Patent Law," 87 *North Carolina Law Review* (2009), 1421 (providing a skeptical discussion of this point).